

REMARKS

Applicant respectfully requests reconsideration of this application.

Claims 1-3, 5-13, 23 and 25-27 are pending in this application.

No claims have been cancelled.

No claims have been added.

Claims 1, 23 and 25-26 have been amended.

Claims 1-3, 5-7, 11, 13, 23 and 25-27 were rejected under 35 U.S.C. §102(e) as being unpatentable over U.S. Patent No. 6,410,981 issued to Tao (hereinafter referred to as "Tao").

Claims 8-10 were rejected under 35 U.S.C. §103(a) as being considered unpatentable over Tao, alone.

Claim 12 was rejected under 35 U.S.C. §103(a) as being considered unpatentable over Chung in view of a subset of pages provided by the Examiner of a book entitled "Electronic Packaging and Interconnection Handbook" (copyright 1991 by McGraw-Hill) in which a Charles A. Harper is listed as the editor in chief (hereinafter referred to as "Harper").

35 U.S.C. §102(e) Rejection of Claims 1-3, 5-7, 11, 13, 23 and 25-27

The Examiner has rejected claims 1-3, 5-7, 11, 13, 23 and 25-27 under 35 U.S.C. §102(e) as being considered to be anticipated by Tao, and in so doing, the Examiner is repeating the same rejection originally presented in the previous Office Action. Applicant once again respectfully submits that claims 1-3, 5-7, 11, 13, 23 and 25-27 are not anticipated by Tao, because Tao does not teach each and every element of Applicant's invention as claimed.

Specifically, regarding independent claims 1 and 23, Applicant respectfully submits that Tao does not teach disposing a sealant between the substrate and the lid in a pattern with at least one break in the pattern remaining

subsequent to the substrate and the lid being assembled together. Tao does teach having at least one groove in cap 1 (as shown in Figures 1, 2a and 2b of Tao), or at least one groove in strengthening ring 2 (as shown in Figures 3, 4a and 4b of Tao), or having a strengthening ring 20 made up of multiple segments 20a (as shown in Figures 5a and 5b). There is no discussion anywhere within Tao of any breaks in the pattern of adhesive 7, and therefore, Applicant again maintains that Tao does not teach gaps in the sealant (or "adhesive"), at all.

Applicant's argument regarding claims 1 and 23, above, repeats the argument that Applicant made to the same rejection of these same claims in response to the previous Office Action. In the Response to Arguments section of the present Office Action, the Examiner responds to this same argument made by Applicant in response to the previous Office Action by stating that Applicant is arguing that strengthening ring in Tao cannot be considered a sealant, and that this argument by Applicant makes use of terms different from Tao to label the claimed invention and does not result in any structural difference between Applicant's claimed invention and the prior. In effect, the Examiner has argued that the strengthening ring of Tao is equivalent to the sealant of Applicant's claimed invention. Applicant respectfully disagrees, and draws the Examiner's attention to the lines 46-55 of column 2 of Tao, where the strengthening ring is described as being made of copper, and where there is some discussion of achieving the same structure with strengthening ring segments in the embodiment depicted in Figure 5 of Tao as with the single strengthening ring in the embodiment depicted in Figure 1 of Tao. The Examiner's attention is further drawn to the discussion at line 3 of column 4 in Tao discussing "adhering the strengthening ring 2 made of copper" to the surface of the substrate. Applicant respectfully submits that, as the name "strengthening ring" and the choice of copper as the material makes clear, the strengthening ring taught in Tao is as

much a portion of the structure of the package as are the substrate and cap, the strengthening ring is provided to give structural strength to the substrate (likely with the goal of preventing cracking of the substrate, as briefly alluded to in lines 16-18 of column 5), and the strengthening ring can no more be considered a sealant than either the substrate or the cap in the various embodiments described in Tao.

Applicant further respectfully submits that the assertion made in the Response to Arguments section of the present Office Action that "the term 'sealant' can be broadly interpreted as any material used to seal" and could therefore include the copper strengthening ring of Tao ignores the fact that the Applicant did provide some description of what Applicant intended as the definition of the word "sealant" in Applicant's invention as claimed. The Examiner's attention is respectfully drawn to lines 1-3 of page 8 and lines 11-14 of page 11 of the specification of Applicant's application where the sealant of Applicant's claimed invention is described as bonding the lid to the substrate. Applicant respectfully submits that a structure made of copper, such as the strengthening ring of Tao, does not possess the characteristic of being able to bond two other structures, such as a lid and a substrate, together. Furthermore, a reading of Tao reveals that the strengthening ring, itself, is first "adhered" to the substrate and then the cap is "adhered" to the strengthening ring adhesive, and therefore, again, the strengthening ring of Tao cannot be correctly viewed as equivalent to the "sealant" of Applicant's claimed invention, taking into consideration the description of at least this property of bonding provided by the sealant of Applicant's claimed invention. The Examiner's attention is also further drawn to the attached definition of the word "sealant" provided from Webster's NewWorld Dictionary, Second College Edition, copyright 1980, Simon & Schuster, David B. Guralink, Editor in Chief, page 1284. A review of the

definition, therein, reveals that the materials used in defining the word "sealant" tend to be flexible and pliable materials. Given this, Applicant respectfully asserts that copper, particularly a variant of copper chosen to be a "strengthening ring," simply does not fit within the type of materials encompassed by this definition, again showing that the copper strengthening ring of Tao cannot be viewed as equivalent to a sealant, including a sealant able to bond a lid to a substrate. However, in an effort to more properly and particularly point out and distinctly claim that which Applicant regards as his invention, Applicant has amended claims 1 and 23 to more explicitly recite the bonding characteristic of the sealant of Applicant's claimed invention.

Also regarding independent claims 1 and 23, Applicant respectfully submits that Tao does not teach having thermal attach disposed between the inner surface of the lid and the die. The text of Tao (e.g., lines 5-10 of column 4) discloses only adhesive between the inner surface of the lid ("cap" in Tao) and the die ("semiconductor chip" in Tao).

With regard to claims 6 and 7, the Office Action makes reference to Figure 5a of Tao while stating that "Tao shows that sealant is disposed between the lid and the substrate is a substantially rectangular pattern with at least one break" and that "Tao shows that the rectangular pattern has four breaks, one in each side of the substantially rectangular pattern." Applicant respectfully submits that, as discussed at length above, Tao does not disclose a sealant that bonds a lid to a substrate. As discussed above, the pieces of copper strengthening ring depicted in Figure 5a of Tao, which is relied upon for this rejection of these claims, are not equivalent to a sealant of Applicant's claimed invention. Applicant asserts similar arguments regarding similar rejections made in the Office Action against claims 25 and 26.

With regard to claims 2-3, 5-7, 11, 13 and 25-27, these claims each depend, directly or indirectly, from independent claims 1 and 23, and therefore incorporate all of the limitations of claims 1 and 23, which Applicant has previously asserted are patentably distinguished over Tao.

For at least these reasons, Applicant respectfully submits that claims 1-3, 5-7, 11, 13, 23 and 25-27 are patentably distinguished over Tao, and are in condition for allowance.

35 U.S.C. § 103(a) Rejections of Claims 8-10

The Examiner has rejected claims 8-10 under 35 U.S.C. § 103(a) as being considered to be unpatentable over Tao, alone.

Applicant respectfully submits that claims 8-10 depend, directly or indirectly, from independent claim 1, and therefore, incorporate all of the limitations of claim 1, which Applicant has asserted is patentably distinguished over Tao.

Furthermore, to establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. In re Royka, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). (MPEP 2143.03). Applicant respectfully submits that, as discussed, above, Tao does not teach or suggest all the features of Applicant's invention as claimed. Specifically, as discussed above, Tao does not teach or suggest a sealant disposed between the substrate and the lid to bond the lid to the substrate, wherein the sealant is disposed in a pattern with at least one break remaining subsequent to the substrate and lid being assembled together. Also, as previously discussed, Tao does not teach or suggest having thermal attach disposed between the inner surface of the lid and the die.

For at least these reasons, Applicant respectfully submits that claim 8-10 are patentably distinguished over Tao, and are in condition for allowance.

35 U.S.C. § 103(a) Rejection of Claim 12

The Examiner has rejected claim 12 under 35 U.S.C. § 103(a) as being considered to be unpatentable over Tao in view of Harper.

Applicant respectfully submits that claim 12 depends from claim 11, and therefore, incorporates all of the limitations of claim 11, which Applicant has asserted is patentably distinguished over Tao.

Furthermore, to establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. In re Royka, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). (MPEP 2143.03). Applicant respectfully submits that, as discussed, above, Tao does not teach or suggest all the features of Applicant's invention as claimed. Specifically, as discussed above, Tao does not teach or suggest a sealant disposed between the substrate and the lid to bond the lid to the substrate, wherein the sealant is disposed in a pattern with at least one break remaining subsequent to the substrate and lid being assembled together. Also, as discussed above, Tao does not teach or suggest thermal attach disposed between the inner surface of the lid and the die. Harper also does not teach or suggest either of these two limitations, and therefore, there can be no combination of Tao and Harper that teaches either of these two limitations. These deficiencies are not cured by the possibility of a teaching or suggestion by Harper of a substrate comprised of organic material.

For at least these reasons, Applicant respectfully submits that claim 12 is patentably distinguished over any combination of Tao and Harper, and is in condition for allowance.


Condition for Allowance

Applicant submits that all rejections and objections have been overcome and the present application is now in condition for allowance. If there are any additional charges or shortages related to the present communication, please charge our Deposit Account No. 02-2666.

Respectfully submitted,

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